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Approaches to Diagnosis and Treatment of Pupils with Developmental Dyslexia.

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A history of the growing interest and knowledge concerning dyslexia is provided to clarify theoretical models, while the operational model is described in terms of admission criteria, instruction, diagnostic and evaluative techniques, role of interdisciplinary staff, and pupil characteristics. Methods, materials, and approach of the instructional program, and instruments used for program evaluation are presented. (RD)

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THIS IS A SUPPLEMENTARY EDUCATIONAL CENTER SUPPORTED BY THE U. S. OFFICE OF EDUCATION (TITLE III, ESEA) AND SPONSORED BY SCHOOL DISTRICTS IN BROOME AND TIOGA COUNTIES.

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Introduction

The Learning Center was established under provisions of Title III of the ESEA of 1965. The acronym PACE (Projects to Advance Creativity in Education) has been applied to these programs and every effort has been made to conduct the operations of the Learning Center in the interest of sound innovation. Since the whole area of developmental dyslexia, including diagnosis, prognosis, and treatment, is so controversial and so many theories of causation and remediation have been and are being issued, every effort has been made to combine innovation in approach with evaluation of results.

The Learning Center is sponsored by nineteen school districts in the Broome-Tioga county area. Of this number, 14 school districts participate in the clinical-tutorial phase of the program. It will be this aspect of the work of the Learning Center that I will discuss tonight.

Although the Center enrolled some fifty pupils from March to June, 1967, it was not until last September (1967) that the program became fully operational. The clinical-tutorial services are offered by ten teachers (four of whom are usually trainees) a social worker, and a staff psychologist. The Center also has a full-time director with a background in clinical evaluation, remedial reading practices, and educational research, a half-time librarian, and consultation services from medical

specialists, including ophthalmologists, a psychiatric consultant, and a neurologist.

During the previous academic year some 200 pupils were seen at the Center for tutorial activity for varying periods of time. An additional 50 pupils were seen for diagnostic evaluations without follow-up tutorial involvement. These pupils were drawn from school districts whose total grade 1 through 12 pupil population was some 60,000, which is 95% of the pupils in all the nineteen cooperating school districts.

I must confess to a somewhat selfish motive in leaving the hallowed if not ivied halls of City University of New York where I was prior to this assignment. Rarely does a professional interested in reading disability have the availability of interested administrators, supervisors, and school psychologists, an ample statistical universe from which to draw a population of significant size, sufficient funds for programming, materials, consultants and the support of education departments at both the state and federal level. My experience here has convinced me that serious educational research must have these same pre-conditions for success.

Towards A Theoretical Model

In discussing the diagnostic and tutorial practices of the Learning Center, it is important to develop some theoretical model from the mass of material which appears in the literature. Interest in the syndrome of

dyslexia was first shown in England. In 1896 the British physician W.P. Morgan (4) used the term "congenital word-blindness" to describe the condition of a fourteen-year-old boy who had not learned to read, although his intelligence and sensory modalities were not impaired. Hinshelwood (3), another British physician, further promoted this concept in a monograph issued in 1917 and entitled, Congenital Word Blindness. In 1921 Wallen (5) used the term dyslexia, and this word, meaning literally "difficult of words," together with its companion, alexia, meaning "without words," have been favored ever since by medical specialists.

In this country Orton's very influential work, Reading, Writing, and Speech Problems in Children(5), was issued in 1937 and promoted the term "developmental alexia." As a practicing neurologist he became aware of children and adults who had serious communication disorders. He defined alexia as "the inability to learn to read with the rapidity and skill which would be expected from the individual's mental age and achievements in other subjects." As one might suspect from the simplicity of this definition, the instructional program he recommended, and later fostered by the Orton Society founded in his memory, was an intensive phonics program utilizing what is called in the field the synthetic or sounding-blending technique.

The significance of Orton's contribution rests with his theory of

causation and not remediation. He used his knowledge of the bilaterality of the human brain and posited the notion that "strepho-symbolia" or twisted symbols was the result of lack of suppression of one hemisphere of the brain. It was essentially the condition of mixed or incomplete cortical dominance which prevented children with normal intelligence and intact sensory apparatus from reading, writing, spelling, and even speaking.

Orton, as was noted, did not use his theoretical model to develop any unique instructional approach. This task it appears evolved upon Delacato and his co-workers who developed approaches such as creeping, crawling, suppressing arm movements, restricting exposure to music and sleeping in a preferred position. Studies have not been demonstrated with any certainty that faulty laterality is responsible for dyslexia, and even less credible (2) is the assumption that faulty neurological development is responsive to tasks assigned by the Institute of Human Development.

One is perplexed as one reads the journals and newsreports of pronouncements by experts from all walks of life who have become interested in this condition. Permit me to present some samples. Kephart, in an article in the Instructor(Aug.-Sept.,1968) states that dyslexia is by definition the result of brain dysfunction. "The term is applied if the disturbance resulting from this dysfunction interferes with one or more of the basic skills essential for reading and

causes the child to experience difficulty in learning to read. Dyslexia is one facet of learning disability."

The New York Times (7/23/68) carried a review of an article by a Japanese psychiatrist, Dr. Kiyoski Makita. It is Dr. Makita's position that it is the nature of the language which determines the incidence of reading disability. He urged further study of the relationship between dyslexia and the type of language structure being used, including the use of i.t.a. with dyslexic pupils.

Another New York Times article (9/30/68) noted that a report prepared for the Department of Health, Education, and Welfare incorporated the views of a Mr. McLaren, director of a school bearing his name in Esopus, New York. Mr. McLaren it seems suggests that "students thought to have a learning disability might be actually paying a penalty for being more advanced than their slower counterparts. By developing newer forms of perception and conceptualization, as shown on the non-verbal tests (in which they do better), they put themselves out of phase with institutions that are slower to change." Recognizing this advanced sensitivity in pupils with dyslexia, Mr. McLaren would like to see special programs in colleges to provide for the needs of those with learning disability.

Now I have not digressed for nought. When one assumes the

responsibility of directing a regional Learning Center specializing in the treatment of pupils with dyslexia, it is essential that the following question be resolved: Which theory of causation and remediation should the program follow? Consider the alternatives: intensive synthetic phonics; creeping and crawling; using a different language recording system such as i.t.a.;acknowledging the superior forms of conceptualization of severe underachievers and accommodating them until our literate culture is replaced by a pictorial one, as inferred by Marshall McLuhan. To this group one might add approaches not unknown to school and clinical psychologists, such as the perceptual training program of Frostig, the reduced stimuli approach of Strauss and Lehtinen, orthoptic or visual training programs, and various forms of psychotherapy. Each approach has its firm adherents.

The National Advisory Committee on Handicapped Children, working in cooperation with the newly formed Bureau of Education for the Handicapped of the U.S. Office of Education, offered the following definition:

> Children with special learning disabilities exhibit a disorder in one or more of the basic psychological processes involved in understanding or in using spoken or written languages. These may be manifested in disorders of listening, thinking, talking, reading, writing, spelling, or arithmetic. They include conditions which have been referred to as perceptual handicaps, brain injury, minimal brain dysfunction, dyslexia, developmental phasia, etc. They do not include learning problems which are due primarily to visual, hearning or motor handicaps, to mental retardation, emotional disturbance or to environmental disadvantage. (7)

In the last analysis this definition belongs to the school of "diagnosis in absentia." Given a certain characteristic, let us say extremely poor reading, and no plausible explanation, since sensory modalities, intelligence, and other relevant factors are normal, we can assign the term "special learning disability." This technique is not without its parallel in medicine. When is a common cold a common cold? When it is <u>not</u> pneumonia, tuberculosis, influenza, and so on. One is reminded of the saying attributed to physicians that one way to treat the cold is to let it develop into pneumonia, because for <u>that</u> illness they can identify a specific causal agent and remedy.

The theoretical model offered by Rabinovitch(6) appears to have stemmed from considerable clinical practice and deserves special consideration. His theoretical model suggests the condition of primary reading retardation or developmental dyslexia when "capacity to learn to read is impaired without definite brain damage suggested in the history or on neurologic examination." I believe that most of the pupils enrolled in the program of the Learning Center are of this variety.

Secondary retardation occurs when "capacity to learn to read is impaired by frank brain damage manifested by clear-cut neurologic deficits." It is our practice not to include these pupils in the program, particularly since the local BOCES unit has classes for the "perceptually handicapped."

Secondary retardation also occurs when "capacity to learn to read is intact but is utilized insufficiently for the child to achieve a reading level appropriate to his mental age." This classification includes all exogenous factors, such as anxiety, poor educational experiences, and family pathology.

There is little doubt that some of our pupils fall into this category, although programs developed by BOCES and the local Mental Health Clinic serve the emotionally disturbed, and school districts provide remedial instruction for pupils whose reading difficulty is due to maturational and educational factors.

Towards an Operational Model

Although the word "dyslexic" was specified in the original application, this term is generally not used in the educational setting. School districts were advised to submit admission applications for all pupils who are reading two or more years below grade level in grades three through six, and one or more years below grade level in grades one and two, and who are not otherwise able to receive intensive and specialized instruction in the local school. It was emphasized that the Center is most interested in enrolling those pupils who have demonstrated sustained inability to profit from the regular language arts instructional program.

The School District Representatives, who generally are administrative, supervisory, or special services personnel attached to the cooperating school districts and who serve as liaisons between the Center and the school districts, were advised not to submit names of individuals who properly belong in special classes, such as those for the mentally retarded or frankly brain injured.

The criteria for admission to the program of the Center were kept as simple as possible. The use of intelligence test data was recommended, but not required. Every effort was made to encourage the referral of pupils within the normal range of intelligence and above, as indicated by achievement in subjects that did not rely heavily on reading and by general observation. Since the school psychologists in many of the cooperating school districts could not provide a psychological evaluation for all pupils referred to the Center, to require this evaluation as a condition for enrollment would have prevented many pupils from participating in the program.

A crucial issue in the implementation of a regional Learning Center is the development of an operational model of a school-wide reading and language arts program. This model can assist the cooperating school districts to determine which pupils should properly be referred for enrollment in the Center. In various discussions the director stressed that developmental, corrective, and remedial reading programs are the proper

functions of each of the school districts. The Learning Center, in contrast, would offer a clinical reading program not usually available to any of the school districts.

In contrast to the other three programs which may be offered in the local school districts, the mode of the clinical program is essentially individual or small group instruction. During the past academic year about 130 pupils attended the Center for tutorial instruction at a given time. Approximately 40 per cent of the pupils were given individual instruction; 50 per cent were taught in groups of two; and only 10 per cent receivedinstruction in groups of three. Pupils usually attend the Center one hour per day on two alternate days of the week.

A preliminary screening is given to each pupil before actual enrollment in the program. This screening usually involves the administration of a sample graded word list, a phonics skills inventory developed by the writer, an informal reading inventory using basal readers, and informal measures of writing and spelling achievement.

The preliminary screening has proven to be a very valuable part of the intake procedure. Pupils are enrolled for individual or group instruction on the basis of their overall performance. Each pupil is assigned an instructional level comparable to the sequences used in most basal readers (primer, 1-2, 3-1, etc.). Pupils who do not meet the criteria

for enrollment are no longer considered for tutorial instruction, and an appropriate letter of explanation is sent to the School District Representative, through whom all applications are processed.

Pupils are enrolled on the basis of the results of the preliminary screening. After they are enrolled each of the ten reading teachers to whom the pupils are assigned, completes a more comprehensive diagnostic evaluation. This evaluation may repeat some of the informal tests already applied. In addition, for pupils reading above grade level one, a standardized test is administered, usually an appropriate level of the Metropolitan Achievement Tests. The level which is administered corresponds with the general instructional level in reading as ascertained by informal evaluation.

After enrollment in the instructional program interdisciplinary services are available on a selective basis. The staff psychologist provides evaluations for pupils who have not received them in the local schools. The social worker has been able to provide in-depth interviews with parents of most of the pupils in attendance. Referrals for psychiatric, pediatric, and ophthalmological evaluations are made by our teachers, the psychologist, and the social worker. Reports of all evaluations are used for planning appropriate instructional programs. Case conferences are periodically held to determine suitable instructional methods and goals for the more severely underachieving pupil.

Some characteristics of the pupils enrolled in the program can be indicated. During the second cycle (December, 1967 to March, 1968) the ratio of boys to girls was eight to one; almost 60 per cent of the pupils had repeated one year of school and more than 70 per cent had experienced at least one half year of grade retention; the majority of the pupils were in the third and fourth grades; the functional retardation of the pupils, defined as the difference between present grade placement and instructional level, was more than two and a half years for the girls and boys combined; the instructional level of almost half the pupils was first grade and below and fourteen pupils reading at pre-primer level may for practical purposes be designated as non-readers; the median instructional level for this group was the lower half of the second grade, which must be contrasted to the median grade placement which was grade four. If the instructional level was compared to the median grade placement which the group should have registered had they not been retained, the degree of retardation would have been even more pronounced.

The IQ evaluations performed by the staff psychologist or made available by the school districts indicate that with rare exception the pupils enrolled in the Learning Center are of normal intelligence and above. The extent of retardation of the group, the persistence of the problem for many of the pupils (despite grade retention and exposure to previous remedial programs) and the prevalence of symptoms which have been noted in the literature as indicative of neurological impairment, strongly

suggest that a substantial proportion of the pupils enrolled in the program warrant the descriptive classification of developmental dyslexia.

Instructional Program

The instructional techniques applied at the Center tend to be eclectic. The massive Cooperative Research Program in First-Grade Reading Instruction (1) which was sponsored by the U.S.O.E. suggests that achievement is a function of the interaction of teacher, pupil, and method. A typical instructional lesson would include some reading in a basal reader, some type of reinforcement activity for development of word analysis and word recognition skills, reading from supplementary books, and occasional use of workbooks. Games and game-like activities are interspersed throughout the instructional hour. Many of these games were developed by the teaching staff to meet the specific instructional needs of the pupils.

There has been a definite tendency in the program to make use of a linguistic approach to the teaching of word attack skills. The report of the Cooperative Research Program noted that "indications are that initial reading vocabulary should be selected with a greater balance between phonetically regular words and high utility words. It is likely that introducing words solely on the basis of frequency of use presents an unusually complex decoding task for the beginning reader."

The instructional program at the Center also incorporates the writing component both as an end in itself and as a reinforcement for word attack skills. Many of our children could not write the complete alphabet upon entering the program and almost all the pupils demonstrate marked disability in the mechanics of writing, spelling, and sentence structure.

To date, it has not been found necessary to introduce into the program the more exotic instructional approaches which are currently being marketed for the teaching of the basic reading skills. Ample use is made of audio-visual instructional media, including the overhead projector, the tape recorder, the record player, and the Language Master (Bell and Howell).

The Center was able to acquire a substantial number of standard typewriters from the commercial department of one of the local high schools. The typewriter appears to be of particular value as an instructional vehicle, particularly for those students who lack the alphabet identification skills. The language experience approach and the Phono-visual method have also been used selectively by the staff.

Many of the pupils involved in the program have problems of personal, social, and school adjustment. A strong therapeutic environment is provided at the Center wherever possible. The active cooperation of

the children is solicited not only in the selection of books used for reading, but also to a considerable degree in the planning of the overall structure of the tutorial session. While some pupils may prefer to work at strictly academic skills, others may on occasion prefer to draw or to make a model airplane or car. These latter activities are then incorporated into the reading lesson, such as reading the required directions. Ten to fifteen minutes at the end of each instructional hour the pupils may go to the Activity Room. This room is staffed by two teacher-aides both of whom have acquired special skills and interest in developing arts and crafts projects. This facet of the program has tended to promote a very positive identification for the Center, and probably accounts to some degree for the active interest in the Center which the pupils have demonstrated.

Program Evaluation

Throughout the period under discussion it had been felt that evaluation was an essential aspect of innovation. A variety of special evaluative instruments were developed specifically in connection with the diagnostic phase. It is well known that the available and reputable standardized group tests were not designed with sufficient precision to assess individual pupils, particularly those whose achievement was skewed to the lower end of the normal curve. Individually administered diagnostic reading tests also appear less than adequate in evaluating a population composed mainly of severe underachievers. The staff of

the Learning Center has developed supplementary tests for the evaluation of word identification skills, spelling and writing, lateral preference, and general interests.

Various instruments have been developed for completion by school district personnel, classroom teachers, parents, and pupils enrolled in the program. Throughout the past summer, utilizing mainly local facilities, we were able to place an enormous amount of data on cards for computer processing. We are presently developing research papers for presentation to various state and national associations.

A mimeographed research report dated October 1, 1968, and entitled, "Evaluation of the Learning Center by the Cooperating School Districts," suggests that the clinical-tutorial phase of the program was viewed positively by the school districts. Of the fourteen districts who had pupils enrolled, ten (71.5%) responded affirmatively to the question, "Should the Learning Center attempt to continue operations after the period of federal funding?" The remaining districts indicated that they were undecided.

Time will permit mention of one other aspect of program evaluation. A questionnaire was prepared for classroom teachers of some 130 pupils enrolled in the program in June, 1968. The purpose of the study was to determine whether classroom teachers perceived change in skills

and attitudes as a result of the pupils' enrollment in the clinical-tutorial program. Classroom teachers of pupils enrolled for three cycles perceived significantly more improvement in reading skills and attitude towards reading than teachers of pupils enrolled in one cycle.

Furthermore, the classroom teachers' perception of improvement was associated with duration of enrollment; pupils enrolled for two cycles were rated as having made significantly more improvement in skills and attitude than those enrolled for one cycle.

To date the results of the program appear to be most gratifying. Parents, teachers, and the pupils themselves have commented on changed attitudes and improved skills. We shall make every effort to share with the professional community, including those assembled here tonight, the results of our evaluative efforts. In this manner we can , we trust, make a small contribution to the neglected thousands who pass through our schools and remain functional illiterates and perhaps emotional wrecks. If pressed for a recommendation at this moment, it would be to establish learning centers in every region of the country which does not have access to competent diagnostic and tutorial services.

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